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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--------------------------------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 09/878,325 | 06/12/2001 | Tsuyoshi Kitahara | Q64826 | 2121 |
| 7590 | 01/13/2004 | | EXAMINER | |
| SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC 2100 Pennsylvania Avenue, NW Washington, DC 20037-3213 | | | TRAN, LY T | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2853 | |

DATE MAILED: 01/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-----------------------|--------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/878,325 | KITAHARA, TSUYOSHI | |
| | Examiner Ly T TRAN | Art Unit 2853 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 20 October 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 7-9, 14, 15, 22 and 24-26 is/are withdrawn from consideration.
- 5) Claim(s) 1-6, 10-12, 19-21, 23, 16-18/1, 5, 10 is/are allowed.
- 6) Claim(s) 13, 16-18/13 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) The translation of the foreign language provisional application has been received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

| | |
|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 13 and 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Kitahara (JP 11277745).

With respect to claim 13, Kitahara discloses a piezoelectric vibrator comprising:

At least one piezoelectric vibrator including:

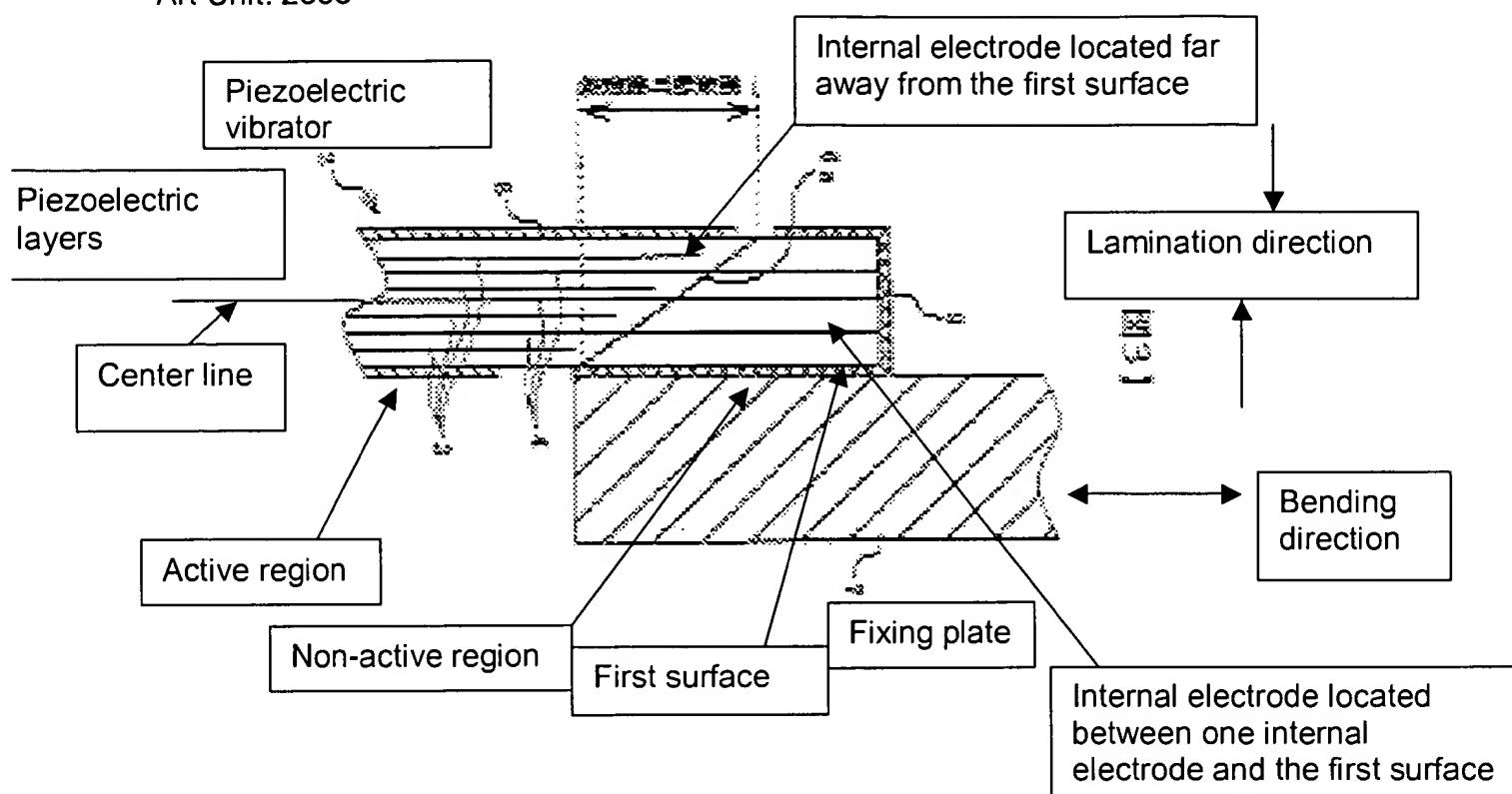
- Common internal electrode layers (Fig.3: element 4) and segment internal electrode layers arranged alternately (Fig.3: element 3)
- Piezoelectric layers, each interposed between adjacent pair of the common and segment internal electrode layers (Fig.3)
- External electrodes formed on an exterior of the piezoelectric vibrator and electrically connected respectively to the common internal electrode layers and the segment internal electrode layers (Fig.3: element 9)
- A fixing member to which a surface of the piezoelectric vibrator is fixed (Fig.3: element 7)

- The piezoelectric vibrator is displaceable in a direction perpendicular to a lamination direction in which the internal electrode layers and piezoelectric layer are laminated (Fig.3)
- An electric field applied portion of at least one of the piezoelectric layers, located away from the surface fixed to the fixing member is shorter than other piezoelectric layers that are located between the at least one piezoelectric layer and the first surface (Fig.3)

With respect to claim 16, Kitahara discloses that at least one piezoelectric vibrator includes comb-like piezoelectric vibrator contracting a piezoelectric group (Fig.2).

With respect to claim 17, Kitahara discloses the piezoelectric vibrator further includes a non-active portion that is not expanded or contracted even when the piezoelectric layers in an active region are driven and the fixing member is joined to a side surface of the non-active portion (Fig.3).

With respect to claim 18, Kitahara discloses a flow passage unit having an elastic plate serving as a part of a seal member for sealing a pressure chamber communicated with a nozzle opening wherein the piezoelectric vibrator unit is attached by fixing a distal end face of the piezoelectric vibrator to the elastic plate (Fig.1: element 16).



Allowable Subject Matter

2. Claims 1-6, 10-12, 19-21, 23, 16-18/1, 5, 10 are allowed.
 - The primary reason for the allowance of claims 1-4, 19-21, 23 and 16-18/1 is the inclusion of a piezoelectric vibrator unit comprising a magnitude of electric fields applied between the common and segment internal electrode layers to the piezoelectric layers is non-uniform to cancel a bending moment caused during contraction of the piezoelectric vibrator. It is this step found in each of the claims, as it is claimed in the combination, that has not been found, taught, or suggested by the prior art of record which makes these claims allowable over the prior art.
 - The primary reason for the allowance of claims 5-6, 10-12 and 16-18/5, 10 is the inclusion of a piezoelectric vibrator unit comprising the piezoelectric layers are non-uniform in thickness. It is this step found in each of the claims, as it is

claimed in the combination, that has not been found, taught, or suggested by the prior art of record which makes these claims allowable over the prior art.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ly T TRAN whose telephone number is 703-308-0752. The examiner can normally be reached on M-F (7:30am-5pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 703-308-4896. The fax phone numbers

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for the organization where this application or proceeding is assigned are 703-872-9306
for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or
proceeding should be directed to the receptionist whose telephone number is 703-308-
0967.



Stephen D. Meier
Primary Examiner

January 9, 2004